

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): An audio signal processing apparatus adapted for delivering an audio signal to a speaker system, comprising:

a frequency dividing filter configured to output portions of a preprocessed audio signal, input thereto, as separate frequency components;

at least two drive units, which are ~~divided or~~ separated by frequency band, configured to receive the separate frequency components output from the frequency dividing filter;

an FIR filter configured to generate the preprocessed audio signal from a filtered signal by correcting a phase shift between ~~phases of respective~~ sound waves radiated from ~~respective~~ drive surfaces of each of the at least two drive units of the speaker system, the phase shift caused by relative physical locations of the ~~respective~~ drive surfaces of each of the at least two drive units, the FIR filter generating the preprocessed audio signal using having coefficients corresponding to an overall inverse impulse response of the entire speaker system; and

a first filter configured to filter at least one input signal to generate the filtered signal, the first filter supplying the filtered signal to the FIR filter, the first filter having a transmission characteristic to localize a sound image origin at arbitrary positions.

Claim 2 (Previously Presented): The audio signal processing apparatus as set forth in claim 1, wherein the at least two drive units include a drive unit for reproducing a signal at a high frequency band and a drive unit for reproducing a signal at a low frequency band, and are coaxially disposed with respect to acoustic center.

Claim 3 (Canceled).

Claim 4 (Currently Amended): An audio signal processing apparatus adapted for delivering an audio signal to a speaker system, comprising:

a frequency dividing filter outputting portions of a preprocessed audio signal input thereto as separate frequency components;

at least two drive units which are divided or separated by frequency band receiving the separate frequency components output from the frequency dividing filter;

a first filter including a transmission characteristic to localize a sound image origin at arbitrary positions, the first filter generating a filtered signal; and

an FIR filter having coefficients corresponding to an overall inverse impulse response of the entire speaker system, the preprocessed audio signal being generated from the filtered signal by preprocessing an input signal with the FIR filter to compensate for a phase shift between phases of ~~respective~~ sound waves radiated from ~~respective~~ drive surfaces of each of the at least two drive units of the speaker system, the shift being caused by the relative physical locations of the ~~respective~~ drive surfaces of each of the at least two drive units.

Claim 5 (Previously Presented): The audio signal processing apparatus as set forth in claim 4, wherein the transmission characteristic of the first filter is a frequency characteristic in which group delay characteristic is constant.

Claim 6 (Canceled).

Claim 7 (Previously Presented): The audio signal processing apparatus as set forth in claim 4, wherein the first filter further includes a transmission characteristic of an impulse response characteristic of an arbitrary room.

Claim 8 (Previously Presented): The audio signal processing apparatus as set forth in claim 4, wherein the first filter further includes a transmission characteristic of an impulse response characteristic of an electro-acoustic transducer.

Claim 9 (Previously Presented): The audio signal processing apparatus as set forth in claim 8, wherein the electro-acoustic transducer is a speaker or headphone system.

Claim 10 (Previously Presented): The audio signal processing apparatus as set forth in claim 8, wherein the electro-acoustic transducer is a record needle.

Claim 11 (Previously Presented): The audio signal processing apparatus as set forth in claim 8, wherein the electro-acoustic transducer is a recording/reproducing device.

Claim 12 (Currently Amended): The audio signal processing apparatus as set forth in claim 8, wherein the FIR filter is an adding unit.

Claim 13 (Previously Presented): The audio signal processing apparatus as set forth in claim 8, wherein the electro-acoustic transducer is an audio amplifier.

Claim 14 (Previously Presented): The audio signal processing apparatus as set forth in claim 4, wherein the first filter adds, to the input audio signal, an impulse response

characteristic which has been selectively switched among impulse response characteristics of plural kinds of electro-acoustic transducers.

Claim 15 (Previously Presented): The audio signal processing apparatus as set forth in claim 4, wherein the first filter is an FIR filter.

Claim 16 (Currently Amended): An audio signal reproducing system including:  
a frequency dividing filter outputting portions of a preprocessed audio signal input thereto as separate frequency components;

a speaker system including at least two drive units which are divided or separated by frequency band receiving the separate frequency components output from the frequency dividing filter;

a signal processing unit including an FIR filter configured to generate the preprocessed audio signal from a filtered signal by correcting a phase shift between ~~phases of~~ ~~respective~~ sound waves radiated from ~~respective~~ drive surfaces of each of the at least two drive units of the speaker system, the phase shift caused by the relative physical locations of the ~~respective~~ drive surfaces of each of the at least to drive units, the FIR filter having coefficients corresponding to an overall inverse impulse response of the entire speaker system; and

a first filter configured to filter at least one input signal to generate the filtered signal, the first filter supplying the filtered signal to the FIR filter, the first filter having a transmission characteristic to localize a sound image origin at arbitrary positions.

Claim 17 (Currently Amended): An audio signal reproducing system including:

a frequency dividing filter outputting portions of a preprocessed audio signal input thereto as separate frequency components;

a speaker system including at least two drive units which are divided or separated by frequency band receiving the separate frequency components output from the frequency dividing filter;

a signal processing unit including a first filter having a predetermined, arbitrary transmission characteristic and an FIR filter having coefficients corresponding to an overall inverse impulse response of the entire speaker system, the preprocessed audio signal being generated from a filtered signal by preprocessing an input signals with the FIR filter to compensate for a phase shift between ~~phases of respective~~ sound waves radiated from ~~respective~~ drive surfaces of each of the two drive units of the speaker system, the shift being caused by the relative physical locations of the ~~respective~~ drive surfaces of each of the at least two drive units; and

a first filter configured to filter at least one input signal to generate the filtered signal, the first filter supplying the filtered signal to the FIR filter, the first filter having a transmission characteristic to localize a sound image origin at arbitrary positions.